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THORLABS

TLV-QFXL - JUL 1, 2019

Item # TLV-QFXL was discontinued on JUL 1, 2019. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

MICROSCOPE FILTER CUBES

- ▶ Thorlabs and OEM Fluorescence Filter Cubes
- ▶ Compatible with Select Thorlabs' Cerna[®], Olympus, and Nikon Microscopes
- ▶ Drop-In Compatibility and Hassle-Free Optic Exchange
- ▶ Filter Pre-Mounting Available



Application Idea
 Thorlabs' TLV-QFXL Filter Cube
 with MDF-GFP Filter Set



TLV-U-MF2
 Thorlabs Cube for Olympus
 AX, BX2, and IX2 Microscopes



MDFM-QFXL
 OEM Cube for Nikon E200-1000
 and TE200 Microscopes



TLV-TE2000
 Thorlabs Cube for Nikon TE2000
 and Eclipse Ti Microscopes

OVERVIEW

Features

- Drop-in Filter Cubes for Select Thorlabs' Cerna[®], Nikon, and Olympus Microscopes
- Advantages of Thorlabs-Manufactured Cubes Over OEM Cubes:
 - Reduced Dichroic Mirror/Beamsplitter Distortion for Improved Image Quality
 - Simplified Hassle-Free Optic Mounting
- Easily Mount Fluorescence Imaging Filter Sets: Emission Filter, Excitation Filter, and Dichroic Mirror
- Filter Cubes with Pre-Installed Filters Available



Click to Enlarge
 Thorlabs' filter cubes feature
 labels for identifying installed
 filters.



Click to Enlarge
 Thorlabs' filter cubes (top) retain the dichroic beamsplitter using a spring plate that applies force evenly, putting less stress on the optic compared to OEM cubes (bottom). The spring plate is also pre-mounted on the cube, simplifying the assembly process.

We offer Thorlabs and OEM Drop-In Filter Cubes for select Cerna, Olympus, and Nikon fluorescence microscopes. Each filter cube holds one Fluorescence Filter Set, which includes an excitation filter, emission filter, and dichroic mirror/beamsplitter. Optics can be mounted, aligned, and swapped out easily, following the videos and assembly instructions below. Please see the compatibility tables below to determine the correct filter cube for your application.

Compared to OEM filter cubes, Thorlabs' filter cube design features improved dichroic mirror retention for lower optic distortion, simplified optic mounting (see photo to the right), and three engraved labels for writing information about installed filters (see photo above).

These drop-in filter cubes are offered as empty mounts. The filter cubes are compatible with excitation filters (Ø25 mm, up to 5 mm thick), emission filters (Ø25 mm, up to 3.5 mm thick), and dichroic mirrors (maximum sizes vary, please see below for details) which are commonly used in applications targeting specific fluorophores. Select filter sets are available pre-installed into Thorlabs' filter cubes here. For other filters and custom requests, please contact Technical Support.

Note: Thorlabs does not guarantee compatibility with other industry-standard microscopes not mentioned on this webpage.

Thorlabs Microscopy Filter Cubes



Click to Enlarge

- ▶ Simplified Assembly and Improved Filter Retention Compared to OEM Cubes
- ▶ Compatible with Olympus and Nikon Microscopes (See Table Below)
- ▶ Durable Aluminum Filter Cube Body
- ▶ Designed for Use with Thorlabs' and Third-Party Fluorescence Filter Sets
- ▶ Side Labels for Marking Installed Filters

Thorlabs' filter cubes feature a spring plate retention mechanism for the dichroic mirror that results in lower optic stress for improved imaging. Our design also offers an all-aluminum cube body, simplified optic mounting, and three labels for writing information about installed filters. Each cube is also engraved with the item number. Refer to the table below to view which filter cubes are compatible with which microscope. These cubes are also available with pre-installed imaging filter sets.

Each filter cube holds one set of fluorescence filters: an excitation filter, an emission filter, and a dichroic mirror; see table below for compatible sizes. Optics can be mounted, aligned, and swapped out easily as illustrated in the video to the right. For detailed assembly instructions, please refer to the assembly manuals in the table below.

The excitation and emission filters are mounted using the included SM1RR Retaining Rings and an SM1 spanner wrench, such as the SPW606 (sold separately). The use of SM1RR retaining rings across all filter cubes makes it easier to replace lost or damaged rings. The filter cube bodies may be disassembled for optic installation or removal using a #1 Phillips screwdriver.

Note that the OEM filter cubes sold below utilize plastic in their construction, while these filter cubes have aluminum bodies. When mixed in a filter cube turret, it is important to balance the weight. To ensure longevity of a motorized filter cube turret and prevent unnecessary wear, please place matching filter cubes opposing each other to maintain balance.

| Item # | Microscope Manufacturer | Compatible Microscopes | Compatible Excitation Filter Size | Compatible Emission Filter Size | Maximum Compatible Dichroic Mirror Size | Assembly Manual |
|------------|-------------------------|--|------------------------------------|--------------------------------------|---|-------------------|
| TLV-U-MF2 | Olympus | AX, BX2, and IX2 Series | Ø25 mm or Ø1", Up to 5 mm thick | Ø25 mm or Ø1", Up to 3.5 mm thick | 25.9 mm x 36.9 mm x 1.1 mm | TLV-U-MF2 Manual |
| TLV-U-FF | Olympus | BX3 and IX3 Series | | | 26.7 mm x 37.7 mm x 1.1 mm | TLV-U-FF Manual |
| TLV-QFXL | Nikon | E200, E400, E600, E800, E1000, TS100, TS100F, TE200, TE300, ME600L, L150A Scopes | | | 25.2 mm x 37.5 mm x 1.1 mm | TLV-QFXL Manual |
| TLV-TE2000 | Nikon | TE2000, 50i, 55i, 80i, 90i, Eclipse Ti, and Epi-Fluor Illuminator Scopes | | | 25.9 mm x 36.6 mm x 1.1 mm | TLV-TE2000 Manual |

Please contact Tech Support with questions regarding other cube compatibility, mounting, and filter options. Thorlabs does not guarantee compatibility with other industry-standard microscopes not mentioned on this webpage.

| Part Number | Description | Price | Availability |
|-------------|--|----------|--------------|
| TLV-U-MF2 | Customer Inspired! Microscopy Cube Assembly for Olympus AX, BX2, and IX2 Microscopes | \$472.77 | Today |
| TLV-U-FF | Customer Inspired! Microscopy Cube Assembly for Olympus BX3 and IX3 | \$472.77 | Today |
| TLV-QFXL | Customer Inspired! Microscopy Cube Assembly for Nikon E200-1000, TE200 | \$426.54 | Today |
| TLV-TE2000 | Customer Inspired! Microscopy Cube Assembly for Nikon TE2000 and Eclipse Ti | \$426.54 | Today |

OEM Microscopy Filter Cubes

- ▶ OEM Filter Cubes from Olympus and Nikon
- ▶ Interchangeable with Thorlabs Microscopy Cubes (Sold Above)
- ▶ Designed for Use with Thorlabs' and Third-Party Fluorescence Filter Sets

These OEM Filter Cubes are manufactured by Olympus and Nikon. Each filter cube holds one set of fluorescence filters: an excitation filter (Ø25 mm, up to 5 mm thick), an emission filter (Ø25 mm, up to 3.5 mm thick), and a dichroic mirror (up to 25.2 mm x 36.0 mm x 1.0 mm). Optics can be mounted, aligned, and swapped out easily as illustrated in the video to the right. Each filter cube body may be disassembled for optic installation or removal using a Phillips head screwdriver. For detailed assembly instructions, please refer to the assembly manuals in the table below.

Thorlabs' Filter Cubes (sold above) are interchangeable with these OEM cubes and offer a number of design improvements, including simplified mounting and reduced dichroic mirror stress for improved imaging.

Note that these OEM filter cubes utilize plastic in their construction, while Thorlabs' filter cubes (sold above) have aluminum bodies. When mixed in a filter cube turret, it is important to balance the weight. To ensure longevity of a motorized filter cube turret and prevent unnecessary wear, please place matching filter cubes opposing each other to maintain balance.

| Item # | Manufacturer Part # | Microscope Manufacturer | Compatible Microscopes | Compatible Excitation Filter Size | Compatible Emission Filter Size | Maximum Compatible Dichroic Mirror Size | Assembly Manual |
|-------------|---------------------|-------------------------|--|------------------------------------|--------------------------------------|---|------------------|
| MDFM-MF2 | Olympus U-MF2 | Olympus | AX, BX2, and IX2 series | Ø25 mm or Ø1", Up to 5 mm thick | Ø25 mm or Ø1", Up to 3.5 mm thick | 25.2 mm x 36.0 mm x 1.0 mm | MDFM-MF2 Manual |
| | | Thorlabs | Cerna® Epi-Fluorescence Microscopes with WFA2001 or WFA2002 Epi-Illuminator Module | | | | |
| MDFM-QFXL | Nikon Quadfluor | Nikon | E200, E400, E600, E800, E1000, TS100, TS100F, TE200, TE300, ME600L, L150A Scopes | | | | MDFM-QFXL Manual |
| MDFM-TE2000 | Nikon TE2000 | Nikon | TE2000, 50i, 55i, 80i, 90i, Eclipse Ti, and Epi-Fluor Illuminator Scopes | MDFM-TE2000 Manual | | | |

Please contact Tech Support with questions regarding other cube compatibility, mounting, and filter options. Thorlabs does not guarantee compatibility with other industry-standard microscopes not mentioned on this webpage.

| Part Number | Description | Price | Availability |
|-------------|--|----------|--------------|
| MDFM-MF2 | OEM Microscopy Cube Assembly for Olympus AX, BX2, IX2, and Thorlabs Cerna Microscopes with WFA2001 or WFA2002 Epi-Illuminator Module | \$508.49 | Today |
| MDFM-QFXL | OEM Microscopy Cube Assembly for Nikon E200-1000, TE200 | \$500.09 | Today |
| MDFM-TE2000 | OEM Microscopy Cube Assembly for Nikon TE2000 and Eclipse Ti | \$500.09 | Today |

Visit the *Microscope Filter Cubes* page for pricing and availability information:

https://www.thorlabs.com/newgrouppage9.cfm?objectgroup_id=5007